

**BEFORE THE
PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2019-3-E**

In the Matter of)	
Annual Review of Base Rates)	DIRECT TESTIMONY OF
for Fuel Costs for)	BRETT PHIPPS FOR
Duke Energy Carolinas, LLC, Increasing)	DUKE ENERGY CAROLINAS, LLC
Residential and Non-Residential Rates)	

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is Brett Phipps. My business address is 526 South Church Street, Charlotte,
3 North Carolina 28202.

4 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

5 A. I am employed as Managing Director, Fuel Procurement, for Duke Energy
6 Corporation (“Duke Energy”). In that capacity, I directly manage the organization
7 responsible for the purchase and delivery of coal and natural gas to Duke Energy’s
8 regulated generation fleet, including Duke Energy Progress, LLC (“Duke Energy
9 Progress,” “DEP,” or the “Company”) and Duke Energy Carolinas, LLC (“DEC”) (collectively, the “Utilities,” or the “Companies”). In addition to fuels, I also supervise
10 the procurement of all reagents.
11 the procurement of all reagents.

12 **Q. PLEASE BRIEFLY SUMMARIZE YOUR EDUCATIONAL AND**
13 **PROFESSIONAL EXPERIENCE.**

14 A. I have a Bachelor of Science degree in Chemistry from Marshall University. I began
15 in the mining industry in 1993 where I held various roles associated with surface
16 mining operations. I joined Progress Energy in 1999, holding roles in terminal
17 operations and sales and marketing for the unregulated business. I transitioned to the
18 regulated utility in 2005 where I worked in various fuels procurement functions and
19 leadership roles. I joined Duke Energy in July 2012 and am currently Managing
20 Director, Fuels Procurement. I am on the Board of Directors of the American Coal
21 Council, and am a member of The Coal Institute, the Lexington Coal Exchange,
22 Southern Gas Association, and the American Gas Association.

1 **Q. HAVE YOU TESTIFIED OR SUBMITTED TESTIMONY BEFORE THIS**
2 **COMMISSION IN ANY PRIOR PROCEEDINGS?**

3 A. Yes. I testified before the Public Service Commission of South Carolina (“PSCSC”
4 or “Commission”) in DEC’s 2017 fuel and environmental cost proceeding in Docket
5 No. 2017-3-E and DEP’s 2019 fuel and environmental cost proceeding in Docket No.
6 2019-1-E.

7 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**
8 **PROCEEDING?**

9 A. The purpose of my testimony is to describe DEC’s fossil fuel purchasing practices,
10 provide fossil fuel costs for the period June 1, 2018 through May 31, 2019 (“review
11 period”) versus June 1, 2017 through May 31, 2018 (“prior review period”), and
12 describe changes forthcoming in the period of October 1, 2019 through September 30,
13 2020 (“billing period”).

14 **Q. YOUR TESTIMONY INCLUDES TWO EXHIBITS. WERE THESE**
15 **EXHIBITS PREPARED BY YOU OR AT YOUR DIRECTION AND UNDER**
16 **YOUR SUPERVISION?**

17 A. Yes. These exhibits were prepared at my direction and under my supervision, and
18 consist of Phipps Exhibit 1, which summarizes the Company’s Fossil Fuel
19 Procurement Practices, and Phipps Exhibit 2, which summarizes total monthly natural
20 gas purchases and monthly contract and spot coal purchases during the review period
21 and the prior review period.

1 **Q. HOW DOES THE COMPANY OPERATE ITS PORTFOLIO OF**
2 **GENERATION ASSETS TO RELIABLY AND ECONOMICALLY SERVE**
3 **ITS CUSTOMERS?**

4 A. Both DEC and DEP utilize the same process to ensure that the assets of the Companies
5 are reliably and economically committed and dispatched to serve their respective
6 customers. To that end, both companies consider factors that include, but are not limited
7 to, the latest forecasted fuel prices, transportation rates, planned maintenance and refueling
8 outages at the generating units, generating unit performance parameters, and expected market
9 conditions associated with power purchases and off-system sales opportunities in order to
10 determine the most economic and reliable means of serving their customers.

11 **Q. PLEASE DESCRIBE DEC'S DELIVERED COST OF COAL AND NATURAL**
12 **GAS DURING THE REVIEW PERIOD.**

13 A. The Company's average delivered cost of coal per ton for the review period was
14 \$84.19 per ton, compared to \$75.45 per ton in the prior review period, representing an
15 increase of approximately 12 percent. This includes an average transportation cost of
16 \$31.49 per ton in the review period, compared to \$26.80 per ton in the prior review
17 period, representing an increase of approximately 17.5 percent. The Company's
18 average price of gas purchased for the review period was \$3.60 per Million British
19 Thermal Units ("MBtu"), compared to \$4.00 per million MBtu in the prior review
20 period, representing a decrease of approximately 10 percent. The cost of gas is
21 inclusive of gas supply, transportation, storage and financial hedging.

22 DEC's coal burn for the review period was 7.5 million tons, compared to a
23 coal burn of 9.5 million tons in the prior review period, representing a decrease of 21
24 percent. The Company's natural gas burn for the review period was 137.0 million

1 MBtu compared to a gas burn of 94.7 million MBtu in the prior review period,
2 representing an increase of approximately 45 percent. The net increase in DEC's
3 overall natural gas burn was primarily driven by the additions of (1) the Lee combined
4 cycle facility which became commercially available in April 2018, and (2) Duel Fuel
5 Operations at Cliffside Units 5 and 6 which became commercially available in
6 November 2018 and December 2018 respectively. Additional contributing factors to
7 changes in coal and natural gas burns were changes in commodity prices and weather-
8 driven demand.

9 **Q. PLEASE DESCRIBE THE LATEST TRENDS IN COAL AND NATURAL**
10 **GAS MARKET CONDITIONS.**

11 A. Coal markets continue to be impacted by a number of factors, including: (1)
12 uncertainty around proposed, imposed, and stayed U.S. Environmental Protection
13 Agency ("EPA") regulations for power plants; (2) continued abundant natural gas
14 supply and storage resulting in lower natural gas prices, which has lowered overall
15 coal demand; (3) continued changes in global market demand for both steam and
16 metallurgical coal; (4) uncertainty surrounding regulations for mining operations; and
17 (5) tightening supply as bankruptcies, consolidations and company reorganizations
18 have allowed coal suppliers to restructure and settle into new, lower on-going
19 production levels.

20 With respect to natural gas, the nation's natural gas supply has grown
21 significantly over the last several years and producers continue to enhance production
22 techniques, increase efficiencies, and lower production costs. Natural gas prices are
23 reflective of the dynamics between supply and demand factors, and in the short term,

1 such dynamics are influenced primarily by seasonal weather demand and overall
2 storage inventory balances. In addition, there continues to be growth in the natural
3 gas pipeline infrastructure needed to serve increased market demand. However,
4 pipeline infrastructure permitting and regulatory process approval efforts are taking
5 longer due to increased reviews and interventions, which can delay and change
6 planned pipeline construction and commissioning timing.

7 Over the longer-term planning horizon, natural gas supply is projected to
8 continue to increase along with the needed pipeline infrastructure to move the growing
9 supply to meet demand related to power generation, liquefied natural gas exports and
10 pipeline exports to Mexico.

11 **Q. WHAT ARE THE PROJECTED COAL AND NATURAL GAS**
12 **CONSUMPTIONS AND COSTS FOR THE BILLING PERIOD?**

13 A. DEC's current coal burn projection for the billing period is 8.4 million tons compared
14 to 7.5 million tons consumed during the review period. DEC's billing period
15 projections for coal generation may be impacted due to changes from, but not limited
16 to, the following factors: delivered natural gas prices versus the average delivered cost
17 of coal, volatile power prices, and electric demand. Combining coal and
18 transportation costs, DEC projects average delivered coal costs of approximately
19 \$77.36 per ton for the billing period compared to \$84.19 per ton in the review period.
20 This includes an average total projected transportation cost of \$25.80 per ton for the
21 billing period, compared to \$31.49 per ton in the review period. The lower projected
22 cost is due, in part, to new rail transportation contracts which went into effect in March
23 2019. This projected average delivered coal cost, however, is subject to change based

1 on, but not limited to, the following factors: (1) exposure to market prices and their
2 impact on open coal positions; (2) the amount of non-Central Appalachian coal DEC
3 is able to consume; (3) performance of contract deliveries by suppliers and railroads,
4 which may not occur despite DEC's strong contract compliance monitoring process;
5 (4) changes in transportation rates; and (5) potential additional costs associated with
6 suppliers' compliance with legal and statutory changes.

7 DEC's current natural gas burn projection for the billing period is
8 approximately 119.4 million MBtu, which is a decrease from the 137.0 million MBtu
9 consumed during the review period. The current average forward Henry Hub price
10 for the billing period is \$2.77 per million MBtu, compared to \$3.10 per million MBtu
11 in the review period. Projected burn volumes will vary based on factors such as, but
12 not limited to, changes in commodity prices and weather driven demand.

13 **Q. WHAT STEPS IS DEC TAKING TO MANAGE PORTFOLIO FUEL COSTS?**

14 A. The Company continues to maintain a comprehensive coal and natural gas
15 procurement strategy that has proven successful over the years in limiting average
16 annual fuel price changes while actively managing the dynamic demands of its fossil
17 fuel generation fleet in a reliable and cost-effective manner. With respect to coal
18 procurement, the Company's procurement strategy includes (1) having an appropriate
19 mix of contract and spot purchases for coal; (2) staggering coal contract expirations
20 in order to limit exposure to market price changes; and (3) diversifying coal sourcing
21 as economics warrant, as well as working with coal suppliers to incorporate additional
22 flexibility into their supply contracts. The Company conducts spot market solicitations
23 throughout the year to supplement term contract purchases, taking into account

1 changes in projected coal burns and existing coal inventory levels.

2 The Company has implemented natural gas procurement practices that include
3 periodic Request for Proposals and shorter-term market engagement activities to
4 procure and actively manage a reliable, flexible, diverse, and competitively priced
5 natural gas supply. These procurement practices include contracting for volumetric
6 optionality in order to provide flexibility in responding to changes in forecasted fuel
7 consumption. Lastly, DEC continues to maintain a short-term natural gas hedging plan
8 to manage fuel cost risk for customers via a disciplined, structured execution
9 approach. DEC continues to monitor and make adjustments as necessary to its natural
10 gas hedging program.

11 **Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?**

12 **A.** Yes, it does.

Duke Energy Carolinas, LLC Fossil Fuel Procurement Practices

Coal

- Near and long-term coal consumption is forecasted based on inputs such as load projections, fleet maintenance and availability schedules, coal quality and cost, environmental permit and emissions considerations, projected renewable capacity, and wholesale energy imports and exports.
- Station and system inventory targets are developed to provide reliability, insulation from short-term market volatility, and sensitivity to evolving coal production and transportation conditions. Inventories are monitored continuously.
- On a continuous basis, existing purchase commitments are compared with consumption and inventory requirements to determine additional needs.
- All qualified suppliers are invited to participate in proposals to satisfy additional or contract needs.
- Spot market solicitations are conducted on an on-going basis to supplement contract purchases.
- Contracts are awarded based on the lowest evaluated offer, considering factors such as price, quality, transportation, reliability and flexibility.
- Delivered coal volume and quality are monitored against contract commitments. Coal and freight payments are calculated based on certified scale weights and coal quality analysis meeting ASTM standards as established by ASTM International.

Gas

- Near and long-term natural gas consumption is forecasted based on inputs such as load projections, commodity and emission prices, projected renewable capacity, and fleet maintenance and availability schedules.
- Physical procurement targets are developed to procure a cost effective and reliable natural gas supply.
- Over time, short-term and long-term Requests for Proposals and market solicitations are conducted with potential suppliers to procure the cost competitive, secure, and reliable natural gas supply, firm transportation, and storage capacity needed to meet forecasted gas usage.
- Short-term and spot purchases are conducted on an on-going basis to supplement term natural gas supply.
- On a continuous basis, existing purchases are compared against forecasted gas usage to ascertain additional needs.
- Natural gas transportation for the generation fleet is obtained through a mix of long term firm transportation agreements, and shorter term pipeline capacity purchases.
- A targeted percentage of the natural gas fuel price exposure is managed via a rolling 36-month structured financial natural gas hedging program.
- Through the Asset Management and Delivered Supply Agreement between Duke Energy Carolinas, LLC ("DEC") and Duke Energy Progress, LLC implemented on January 1, 2013, DEC serves as the designated Asset Manager that procures and manages the combined gas supply needs for the combined Carolinas gas fleet.

Fuel Oil

- No. 2 fuel oil is burned primarily for initiation of coal combustion (light-off at steam plants) and in combustion turbines (peaking assets).
- All No. 2 fuel oil is moved via pipeline to applicable terminals where it is then loaded on trucks for delivery into the Company's storage tanks. Because oil usage is highly variable, the Company relies on a combination of inventory, responsive suppliers with access to multiple terminals, and trucking agreements to manage its needs. Replenishment of No. 2 fuel oil inventories at the applicable plant facilities is done on an "as needed basis" and coordinated between fuel procurement and station personnel.
- Formal solicitations for supply may be conducted as needed with an emphasis on maintaining a network of reliable suppliers at a competitive market price in the region of our generating assets.

DUKE ENERGY CAROLINAS
Summary of Coal Purchases
Twelve Months Ended May 2019 & 2018
Tons

<u>Line No.</u>	<u>Month</u>	<u>Contract</u> <u>(Tons)</u>	<u>Net Spot</u> <u>Purchase and</u> <u>Sales (Tons)</u>	<u>Total</u> <u>(Tons)</u>
1	June 2018	683,250	37,208	720,458
2	July	717,234	149,366	866,600
3	August	678,522	221,948	900,470
4	September	564,680	218,858	783,538
5	October	387,121	95,650	482,771
6	November	349,179	53,824	403,003
7	December	483,535	96,525	580,060
8	January 2019	467,830	111,868	579,698
9	February	555,624	64,276	619,900
10	March	551,679	112,937	664,616
11	April	476,648	227,914	704,562
12	May	549,400	152,538	701,938
13	Total (Sum L1:L12)	6,464,702	1,542,912	8,007,614

<u>Line No.</u>	<u>Month</u>	<u>Contract</u> <u>(Tons)</u>	<u>Net Spot</u> <u>Purchase and</u> <u>Sales (Tons)</u>	<u>Total</u> <u>(Tons)</u>
14	June 2017	587,819	212,159	799,978
15	July	824,226	96,829	921,055
16	August	807,076	179,219	986,295
17	September	678,951	105,441	784,392
18	October	505,295	95,857	601,152
19	November	415,136	58,616	473,752
20	December	593,868	47,388	641,256
21	January 2018	453,755	60,390	514,145
22	February	770,299	0	770,299
23	March	818,185	48,963	867,148
24	April	728,025	13,269	741,294
25	May	712,467	11,115	723,582
26	Total (Sum L14:L25)	7,895,102	929,246	8,824,348

DUKE ENERGY CAROLINAS
Summary of Gas Purchases
Twelve Months Ended May 2019 & 2018
MBTUs

<u>Line No.</u>	<u>Month</u>	<u>MBTUs</u>
1	June 2018	12,715,364
2	July	15,647,875
3	August	12,892,804
4	September	12,377,677
5	October	10,303,322
6	November	11,867,520
7	December	9,183,559
8	January 2019	11,540,233
9	February	11,895,973
10	March	8,829,116
11	April	7,309,473
12	May	12,448,810
13	Total (Sum L1:L12)	137,011,726

<u>Line No.</u>	<u>Month</u>	<u>MBTUs</u>
14	June 2017	6,420,642
15	July	7,915,859
16	August	7,234,856
17	September	6,922,715
18	October	7,413,255
19	November	8,239,078
20	December	6,725,316
21	January 2018	6,638,156
22	February	6,512,143
23	March	10,050,310
24	April	10,537,626
25	May	10,067,211
26	Total (Sum L14:L25)	94,677,167